

Turning a New Leaf:
A Feasibility Study of Converting to Organic Production
of Lettuce from a Conventional Operation

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Abstract:

This study focuses on the possible risks associated with the conversion of a farm from conventional to organic farming practices. The purpose of the study is to test the feasibility of the conversion to organic practices using lettuce as the focus crop and following the changes in a 150 acre farm's net income through a four year conversion time span. Revenues and expenses will be gained from cost and return studies and financial documents will be generated for the base year and the four year conversion period in order to generate five net incomes. The four net income that are generated during the conversion period will utilize the net present value method to accurately compare those forecasted cash flows to the net income of the base year; the current cash flow. In order for the conversion to be deemed feasible, the net present value of the net income in year four of conversion must have decrease by less than five percent when compared to the net income of the base year. If the net present value of the net income in year four of conversion has decreased by greater than or equal to five percent, comparable to the net income of the base year, the conversion must be deemed unfeasible.

The hypothesis of the study is that conversion of a 150 acre conventionally operated farm to an organic operation if will be feasible without a five percent decrease in net income because the farm will be able to qualify for or increase its operating loan to accommodate for the added stress of the conversion period like increase in expenses or decrease in yields. This hypothesis was upheld due to the 150.30% increase in revenue generated by the attainment of the organic price premium in year four of conversion creating a net present value of net income of \$283,360.11 comparable to the base year's net income of \$188,529.02. The hypothesis is upheld and the conversion is deemed feasible for the farm.

Chapter 1

Introduction

Humans have utilized conventional farming methods for thousands of years, but many believe that these practices are not sustainable and pose possible adverse health effects. Demand for organic products has increased over the past few decades due to ongoing research and increased public sensitivity to sustainable business practices but even with steady demand for organic products, supply is still lagging behind (Green, 34). The small supply pool could be partially to blame for organic products relatively higher retail price points when compared to conventionally produced products. Some believe that there might be too many barriers to enter into the organic produce market while others believe the perceived risk of conversion from conventional to organic farming practices outweighs the perceived gains. Investigation into the risks and perception of conversion could be useful in addressing the supply problem within the industry. One way for a business to test the waters of a potential business decision is to conduct a feasibility study. This study will account for the changes in expenses and revenues if the proposed decision is undertaken as well as analyze the perceived current market risks. In order for a feasibility study to be conducted, a focus crop must be chosen that will be successful in the local area and current market.

Demand for organic products is especially strong with certain products that consumers consider particularly susceptible to possess adverse effects of conventional farming. Such products have no exterior rind and are therefore thin skinned. The thin-skinned or no-skinned products can be particularly susceptible to pesticide residue from conventional farming because it does not possess exterior protection. Consumers might be more likely to purchase thin-skinned or no-skinned products in their organic form than the conventional form since organic farming does not utilize pesticides. Therefore consumers are more likely to purchase products like: strawberries, lettuce, and grapes in their organic form as opposed to pineapples or oranges. It is with this in mind that the crop of lettuce is chosen as the focal crop. This crop is produced in the same region, California's Central Coast which includes Santa Cruz and Monterrey Counties, under conventional and organic farming practices.

Problem Statement:

This study will set out to test the feasibility of converting an established 150 acre conventionally operated lettuce farm into an organic operation without decreasing net income by more than five percent at the end of a four year conversion time period. The four year time period is set to allow enough time for the farm to proceed through the organic conversion process and certification process. Net income is the focus ratio of the study and it is used to determine if the conversion is ultimately feasible.

Hypothesis:

Yes it will be feasible to convert a 150 acre conventionally operated lettuce farm into an organically operated farm within a four year time span without decreasing net income by greater

than or equal to five percent because the farm will be able to qualify for or increase its operating loan to accommodate for the added stress of the conversion period like increase in expenses or decrease in yields.

Objectives:

This study requires several objectives, as listed below, which build on each other to successfully organize and analyze the data collected.

- 1) Determine the yield and expense differences between conventional and organic operations of the crop selected
- 2) Determine the revenues differences between traditional and organic operations of the crop selected
- 3) Compile financial statements with particular focus on the income and cash flow statement, to determine the net present value of net incomes during the 4 year time span to analyze the trends during the transition period
- 4) Calculate the final net present value in year four of the conversion and compare the resulting figure to the net income of the conventional method of production, the base year, to see if net income drops by more than 5% due to conversion. This final objective will determine if the hypothesis will be upheld and if the conversion will be feasible.

The first and second objectives are vital because they provide the foundation of data needed for the rest of the study. These initial objectives enable comparisons between the businesses data set before and after the proposed business decision. The second objective is particularly important because it allows comparisons of revenues before and after the proposed business decision and the business should be able to capture a higher price point once organic

certification is received. The first two objectives provide the foundation for performing the next two objectives which focus on actually analyzing the data collected. The third objective enables consolidation of the business's current and forecasted financial data into financial documents for easier comparison. Lastly, the fourth objective addresses the data that will reject or uphold the hypothesis, which in this study will be the focal data set of net income produced by the farm.

Significance of the Study

With the global population growing at an exponential rate it is vital that people try to reduce their impact on the earth and live in a more sustainable manner. Supporting organic local organic farmers is one such way that consumers can lessen their impact on the environment but with such a small supply of organic products and farms, it is difficult for consumers to make that switch. It is important to find what issues are hindering the conversion to a more sustainable method of farming to ensure resources will be available for future generations. Exploring the feasibility of converting a conventional farm to an organic farm will aid in discovering the issues facing farmers and if those issues can be resolved more farmers will be able to participate in sustainable farming practices. If a greater number of farms convert to organic farming practices, the supply of products will increase and those products will be more available to consumers

Chapter 2

LITERATURE REVIEW

In undertaking a decision it is important to fully understand both sides of the argument as well as the ramifications of the decision and this is especially true when it comes to making business decisions. When a business makes a decision that could impact the direction of the company it not only impacts the CEO but potentially everyone that is associated with the business, like the business's employees, stockholders, lenders and suppliers. Since so many people stand to be affected, it is important to take due diligence in making such major business decisions and a feasibility study is one such way to investigate possible business opportunities like expansion or conversion. Feasibility studies are especially useful in exploring business opportunities which may be unfamiliar to the original plan of the business, like the possibility of converting a conventionally operated farm to an organic operation. Such a conversion includes many issues that the current business might not have experience with and a feasibility study enables the business to explore the issues without committing to additional risk.

Feasibility Study

The center of this report is the feasibility study and as stated by Kenkel, Holcomb, and Hill in their 2008 *Journal of Agribusiness* article, a feasibility study is a vital assessment when establishing a business or making a large business decision. "Feasibility studies are often

undertaken to prove that a project higher management wants is, indeed, feasible; that it can be done at benefit to the entity.” (Dekom, 23) Although a feasibility study can be used to explore many opportunities or issues within a business, a typical agribusiness feasibility study will place the focus on market analysis and a financial assessment (Kenkel 2008, 202). The feasibility study is used by a business to see if the proposed venture or opportunity will be prosperous or detrimental to the business. One such example of a feasibility study proving a business opportunity would benefit an agricultural business is from North Dakota State University’s Department of Agricultural Economics. This study tested the feasibility of grazing 5,000 head of sheep on leafy spurge and it found the change would be beneficial to the farm’s bottom line by tracking the forecasted selling break-even prices and weights (North Dakota, 26). The farm was able to test the decision without committing to additional risk that it could have posed.

Feasibility studies compile the expenses and revenues of the original business and the forecasted expenses of business if the business decision is undertaken. Once that data is known, it is placed into financial statements and ratios for better comparison between post and pre-decision. The study will state that a focal ratio or data section may not decrease beyond a certain limit for the opportunity to be considered feasible. A focal ratio is the ratio that will determine if the decision is deemed feasible and example can be the businesses debt to equity ratio which is further discussed later on in this review. A focal data section is similar to a focal ratio in that it is the determining factor of feasibility of the study but it is not in ratio form. A focal data section is raw data like net income found in the business’s financial statements that should be tracked during the study to determine if the decision is feasible. Financial statements and ratios are compared to each other or a bench mark to determine if a focal section; for example net income or working capital, has experienced detrimental effects that the study has predetermine to be

beyond the limit of feasibility. The detrimental effects of the business have the potential to be extensive especially if the business wishes to make a large expansion or other type of big decision.

A feasibility study is especially useful when the business is considering a big change in their business because due diligence must be made to ensure minimum risk to the company. The study enables the businesses owner to further investigate the opportunity without committing to increased risk. If the project is deemed unfeasible, the business can walk away from the project without any detrimental effects. The feasibility study needs to survey and analyze the impact the decision or opportunity will create on the business. The study should look at the current expenses, revenues and market conditions and compare those figures with the projected figures if the business undertakes the decision. If those expenses have increased by more than the revenue gained, the project is probability not feasible for the business at this time. A sound feasibility study, along with financial statements and a business plan are also useful in securing financing (Kenkel 2005, 232). The financial statements provide an excellent overview of the business's financial health, including the revenues and expenses needed for the baseline comparison numbers of the feasibility studies.

The expenses of a business are costs incurred by the business due to its operation. The expenses can be fixed, occurring without regard to units produced, or variable, costs fluctuate with variation of production. Examples of fixed expenses are a mortgage or rent payments because they will occur even if the business is not producing any products. Examples of variable expenses are utilities or hourly labor and they will change with production levels. The revenue of the business is the money generated by the sale of goods or services. The business's revenue is equal to the price of the good or service multiplied by the quantity or yield sold. These important

financial figures can be found on the financial statements of the documents and they are vital in forming the feasibility study.

Financial Statements

There are three main financial statements: balance sheet, cash flow, and income statement. Each financial statement is important to the operation of the business and each plays a distinct, vital role in many aspects of operation. Each of the statements has a different and unique function. Lenders need all three financial documents for the business to be considered for financial assistance and the statements provide the business owner with an excellent tool to manage their assets, liabilities and cash inflows/outflows. The cash flow budget is the statement that is viewed by many as the most useful in the day-to-day operations of the business.

Although all of the main three financial statements are important in fully understanding the well-being of a business, the cash flow statement shows the best overall financial view over an extended period of time. As stated in Weiss and Yang's article in the *CPA Journal*, the cash flow statement provides critical information about the business's performance and activities over a year time span (Weiss, 26). For a traditional business, the businesses activities, cash inflow or outflow, are categorized in three sections on the cash flow statement: selling goods/services, selling stocks/bonds or investing in future growth (Financial statement analysis, 11). Agricultural businesses place their cash inflows as revenues from goods sold and place their cash out flows into categories broken-down by the type of production. The cash outflows in an agricultural crop based business are broken down into cultural expenses (related to the growing of the crop), harvesting expenses and non-operating expenses. By placing the cash flows in these categories, business owners are able to see where the majority of the business's money is going to and

coming from. This enables the business owner to divert money from a section that they feel might be monopolizing their liquid assets and place those assets to a more productive use. The cash flow statement is also broken down into sections based on time; usually monthly but some business produce quarterly statements.

The monthly breakdown of the cash flow statement enables business owners to see their monthly obligations, like loan payments, against their monthly cash received and it is often the preferred layout of lenders. The cash flow statement starts with a beginning cash balance and the three different categories of cash flows add or subtract from that amount to create an ending cash balance at the end of the period. That ending balance will become the beginning cash balance in the following period. The segmentation of the cash flow statement allows the reconciliation of cash flows from one time period to the next (Financial statement analysis, 11). This statement allows the business owner to review their obligations and find the best months to undertake more risk or less risk. If a company is highly leveraged during a certain month they would not want to take on additional risk with a new addition to their business during that time period. In contrast, if a business owner sees they have a period of time with low payments and high cash inflow, they might be willing to expand the business or divert more cash to other investment activities. The analysis of this statement allows the business owner to maintain better control over the business's cash flows and, when used with other financial statements and receipts, it provides a good verification of the accuracy of the company's accounting. This statement is also useful when used in conjunction with the income statement because provides a comparison in the quality of the earnings that can be found in the income statement (Siegel, 38). The income statement and cash flow statement should show similar cash flows, although there are certain activities that are only on one of the statements.

The income statement is where the company's expenses and revenues can be found for the year. As stated in an article in the August 2008 issue of *Managing Credit, Receivables & Collections*, the income statement provides information about the business's sales/revenues, and the costs/expenses over a period of time. (Financial Statement Analysis, 13) The income statement is an important document for lenders to analyze to ensure the business has adequate revenues to cover their expenses and this statement is important to a feasibility study because it contains the needed data on the business's expenses and revenues. The net income is a very important calculation of the businesses financial health and it is equal to the total revenues generated by the business during the operating period less the total expenses generated by the business during the operating period. The net income calculation is it is especially important to this study since it is the deciding calculation that the hypothesis is based. Another important consideration on the income statement is the depreciation expense which accounts for the yearly amount the business assets are decreasing in value until they reach their minimum value at the end of their useful life (this value is also known as the salvage value). Over the operation of the business the depreciation expense should be a decreasing amount if no new assets are purchased. The cash flows, revenues and expenses are only half of the picture of the overall health of the business and to fully understand the overall business's financial well-being the balance sheet must be included.

The balance sheet is the final piece of the puzzle in the business's financial health. The balance sheet does not take cash flows, revenues, or expenses into account. Instead, the balance sheet provides a means to balance the business's resources, also known as assets, and obligations also called the businesses liabilities (Jennings, 44). The balance sheet does not have a long time-span to document the data because it stays focused on creating a snapshot in time of the

business's assets and liabilities. The assets and liabilities are listed on the sheet with the assets listed towards the tops of the page. The two categories are further broken down into a current and non-current/or/ long-term status. An example of a current asset is accounts receivable because those are accounts that are owed to the business by others within a one year time span and an example of a non-current / long-term asset is a truck that will likely be with the business for more than a one year time period. An example of a current liability is accounts payable because those are accounts that the company owes to others that are due within a one year time span and an example of a non-current/ long-term liability is a mortgage loan since it is likely not due within a year time span. Assets are a useful tool in finding the equity/or/ net worth of the company because the equity can be found by subtracting the liabilities from the assets. The assets and liabilities, current and non-current, of the company are also an important factor in generating a feasibility study.

All three of these financial statements are important in fully understanding the financial health of the business before the possible decision is posed by the feasibility study. These three statements should also be generated a second time for the feasibility study to investigate the forecasted expenses, revenue, cash-flow, assets, and liabilities after the proposed decision in order to compare the two sets of statements. The focus of this study will be the cash flow statement and income statement, therefore only an abbreviated balance sheet will be provided during the study.

Organic farming Certification and Organic Conversion risks

The organic farming movement started in the 1940s and has developed since then to the relative forefront of society (Heckman). The movement gained federal attention in the 1980's with the USDA publication *Report and Recommendations on Organic Farming*, the 1990's in

the *Federal Organic Foods Production Act*, and in 2002 the USDA Certified Organic label enabled labeling for differentiation of organic products. Organic products are different from traditional products because they are produced using farming practices that use natural products like organic manure. These products are allowed inorganic production because they do not contain the possibly harmful components like synthetic fertilizers, pesticides, chemicals, hormones and antibiotics (Chvyl, Lockshin, Mueller, and Remaud 2008 p.3). Organic farming aims to create a natural product that eliminates unnatural chemical use. These products are considered by some to be superior to conventionally produced products due to their supposed environmental and health benefits and those consumers will pay a price premium when purchasing these products. To ensure the products labeled as organic meet the growing standards the farms producing the product must pass an inspection and certification process

The organic certification process can be an expensive process for farmers to endure. The cost of conversion includes direct cost like fees and indirect cost like the opportunity cost of land. The land to be put into organic certification cannot be certified unless it has been used in compliance with minimum organic standards, with no pesticide or synthetic material application use on the land) for at least three years. The three-year conversion process entails both direct costs and opportunity costs (Guthman, 146). The potential costs of certification can be offset if the market for organics is strong and currently domestic supply lags behind demand. The United States' organic products are also sold abroad in northern Europe, Canada, Australia, Japan, and China, and these countries tend to have which have high-income consumers who favor organics (Lohr, 1125). This steady demand should generate a stable environment for the conversion process.

The conversion process for certification serves three main functions for the producer as discussed by Lohr in the *American Journal of Agricultural Economics*. The first of which is to assure the consumer that the product is indeed an organic product and has been grown without the use of synthetics or pesticides. The second function of certification according to Lohr is to assure the producer that they will be able to capture the price premiums they deserve for their differentiated product. The third function of certification is to make the market place simpler by providing clearly labeled organic products and ensure separation of those organic products from the conventional products. Certification of organic products must be earned through a process that leaves land free of conventional farming for three years and multiple inspections must be performed before certification is awarded. Farms must seek organic certification if their operations exceed \$5,000 in gross organic sales annually. (California Organic Program) The farmer must develop, submit and implement an Organic Systems Plan for their farm to their respective certification agency and certification agent for review before they can be considered for certification (CCFO). During the three year conversion process the certifying agent will review the plan for the farm and perform multiple inspections of the farm to ensure the plan is being properly implemented before granting certification (CCFO). Even after certification is gained the farm must undergo annual inspection and pay annual dues to maintain certification (CCFO). Although this process can act as a barrier to entry it also ensures product differentiation and protection once certification is earned.

There are many risks that can be associated with transitioning from conventional to organic farming. One such risk is discussed in the *Australian Journal of Agricultural and Resource Economics* the authors investigated the differing yields of organic and conventional farming methods using for various crops and how those yield variations translated into perceived

risks. The study found that taxes, subsidies and yield stabilization all encourage the conversion processes from conventional to organic farming because they provided incentives and lessened the perceived risk of conversion. Overall the study also found that farmers who possess a risk-adverse attitude would be less likely to convert from conventional to organic than a farmer that has a risk-free attitude. This conclusion displays the conceived risk associated with converting to organic from conventional farming. The need for incentives also echoed in an article from the *Journal of Agricultural Economic* which states that price supports could encourage farmers in the conversion process and it also states other motivational tools could be used in the private sector to promote the demand for organic products, in the hope that an increase in demand could inspire farmers to convert acreage to meet that demand. The problem with this theory is the demand for organic products is already fairly high according to the USDA feature in Amber Waves.

The Amber Waves article states that the current practices in organic farming in the United States has not been enough to keep pace domestic consumer demand so increasing demand domestically would not be a good incentive to reduce risk for American farmers. This article also reiterates that financial incentives are a good way to entice farmers to convert from conventional to organic farming practices. By providing financial incentives, the farmer will commit to a lessened risk when converting. This support for financial incentives to improve supply of organic products and speed of farmer conversion to the organic farming process is echoed in the *Agribusiness* article titled "Retail and Wholesale Market Power in Organic Apples". The article states that the shift from conventional to organic farming in the apple industry has been so slow, due to the certification cost, that supply is diminished and "incentives for suppliers of organic products to be such that the supply will continue to rise rapidly over

time.”(Timothy J. Richards 68, 72) The financial incentives will entice farmers to enter the conversion process and increase the supply of organic products on the market. With more farmers in the industry, there might be greater funding and lessened risk associated with conversion. Greater funding might enable research that could lessen the input costs or increase yield of organic farming and therefore lessen the risk associated with conversion along with increasing the profits of farmers that are currently farming organically.

Chapter 3

METHODOLOGY

The methodology of this project will focus on gathering financial information of the farms current condition and the forecasted condition if the proposed conversion is undertaken by the business. The feasibility study also needs to take the current market conditions into account to see if the market is favorable towards the proposed product at this point in time. The collected data, financial and non-financial information, will then be analyzed to determine if the conversion is feasible. The analysis will consist of compiling the respective financial data into financial statements, calculating yearly net incomes and calculating a final net income in year four of conversion. The net incomes generated during the conversion time period will need to be calculated using the net present value method since those figure will need to be compared to current figures. This method will be discussed further in this chapter and it will be preformed on the expenses, revenues and net incomes appearing on the income statements during the years of the conversion period. This method is especially important to apply to the net income since it is the focal ratio that will decide if the hypothesis is upheld or rejected. If the net income has decreased by more than the given limit, a decrease of five percent, then the conversion must be deemed un-feasible. The methodology section of this study begins with the collection of the data needed for the study.

Procedures for Data Collection

The main objective of this project is to compile and examine the differences in expenses, revenues and yields to ultimately determine if the conversion from a conventionally operated farm to an organic operation would be feasible within a four year time span without decreasing net income by more than five percent. The farm that will be examined will be a 150 acre lettuce farm in the Central Coast region of California that is already established under conventional operation. The Central Coast region of California includes the Santa Cruz and Monterey counties. Certain sections in these counties, specifically the Salinas Valley in Monterey County, are commonly known as the “Salad Bowl of the World” for its fertile growing conditions. Despite the excellent growing conditions in this location, a feasibility study should still be conducted to examine the possibility of converting from conventional to organic farming in order to minimize risk. In order to begin examining the feasibility of the conversion, the conventional and organic lettuce farming expenses, revenues and yields must be found and used to generate financial statements and ratios.

Expenses and Revenues

The expenses can be found at the University of California at Davis, Agricultural & Resource Economics website, <http://coststudies.ucdavis.edu/current.php>, which alphabetically lists the major commercial crops produced in California in a table. One cost study should be selected for conventional and for organic lettuce because two different cost and return studies are needed in order to analyze and compare the differences in expenses, yields and revenues. If there are multiple options for conventional or organic lettuce cost and return studies, be sure to choose the study with the most current date because that ensure the least amount of input price indexing

and therefore the most accurate numbers. The process of price indexing is used to update input prices that are from older years and although the process is helpful in accounting for possible inflation, it is not completely accurate, so minimal indexing should be performed to ensure the most accurate data. The farming conditions (i.e. conventional, organic or species of lettuce) can be found in the productions conditions column on the table. It is also important to choose cost studies that are in the Central Coast region of California because it will most accurately reflect the actually costs associated with that growing region.

The revenues gained from the sales of conventional and organic lettuce and expected yields per acre can also be gained from the cost and return study. The cost and return studies layout the expected expenses, revenues, yields expected from using a specified farming method on a particular crop in a set region. The data is collected by the University of California at Davis and it can be used to predict an individual farm's expenses, revenues and yields. The cost and return studies are only predictors of what should happen given steady input prices and good growing conditions and are therefore not completely accurate predictors. While the expected expenses, revenues and yields are vital to the creation of financial ratios, financial statements and the feasibility study as a whole; other contributing factors, like the condition of the product's market, should also be considered in the decision making process.

Market conditions and Risks

One such factor to consider is the market volatility of the two farming methods because they help shape the farmer's view of the risk of the decision. Data on the current market conditions can be found at the United States Departments of Agriculture's Economic Research Service. A useful tab on the website is the Data Set tab, <http://www.ers.usda.gov/Data/>, which

provides summary of the current conditions in various crops. The vegetable and melon outlook, <http://www.ers.usda.gov/Publications/VGS/>, is another publication on this website that provided current data on the market conditions of the industry. The outlook is produced every other month and it provides information on the current and forecasted market conditions in the vegetable and melon industries domestically and abroad. According to a current vegetable and melon outlook, the current risk of the organic market is not considered extremely high comparatively to traditional product given the strong demand. This site provides a wide variety of data on the current market condition as well as outlooks for the future of the industry. The website http://www.agmrc.org/commodities_products/vegetables/lettuce_profile.cfm also provides information on the current market conditions and currently states that the leaf lettuce market is strong.

Procedures for Data Analysis:

The cost and return studies will be used to generate financial statements for conventional and organic production of lettuce on 150 acres. The two statements can be compared to find the major differences in operating the two different types of farms. Once the data is in the form of financial statements, net income will be calculated annually and tracked to monitor the trend. Trends in percent change in expenses relative to the base year will also be calculated and monitored during the conversion time period. While these figures are not the focal data of the study, they could provide useful insight into the inner-workings of the business and provide an additional method to measure the possible financial burden of conversion on the farm. The most important calculations are to generate and compare the net incomes of year one and year four because that is where the project will be able to directly address the problem statement of whether it is feasible to convert a 150 acre conventionally operated lettuce farm into an organic

operation without decreasing net profit by more than five percent at the end of a four year conversion time period. In order to accurately compare these two figures, the net income from year four must be calculated using the net present value method.

The net present value method, abbreviated as NPV, is use to generate the present value of expected future cash flows. (Brigham) The net present value must be calculated when dealing with future cash flows to fully understand how those cash flows presently relate to the business and it is needed to accurately compare current cash flows to forecasted cash flows. The value of money is worth more in the present time then in the future due to market uncertainty so the NPV method is used to make future cash flows comparable to present cash flows. The NPV method will be used in years one through four in the conversion period to relate the future cash flows of net income to the present value net income in the conventionally produced base year. An example of the application of the NPV method is the calculation of year one in conversion's
$$NPV = \frac{\text{the initial investment} + (\text{Cash flow from year one})}{(1 + \text{cost of Capital})}$$
 (Brigham) In this study the cash flows are the net incomes at years end and as the conversion time period continues, the net incomes will be added to the equation. The net incomes will be divided by their respective costs of capital raised to the numbered year in conversion, for example, the first year in conversion's cost of capital is raised by one, the second year cost of capital is raised by two and so forth.

If once the NPV net income is generated and it is found that the net income decreases by more than or equal to five percent during the four year time span, the conversion to organic operations should be deemed unfeasible for the farm at this point and time. The farm might considerer revisiting the conversion later when conditions, internally and externally, improve. If once the NPV net income is generated and it is found that the net income decreases by less than

five percent, stays the same or increases during the four year time span then the conversion to organic operations can be deemed feasible for the farm at this present time. Although the market conditions are also a contributing factor and the favorability of organics in the market should be considered, the ultimate feasibility is the percent change in net income

Assumptions:

One assumption of this project is that the farm being studied is representative of an average or expected lettuce farm with no specialized or specific issues that would increase expenses. Another assumption of the study is that the farm will receive favorable growing conditions (weather, disease or pest outbreaks) during the course of the study because unfavorable growing conditions cause unforeseen expenses and yield loss that will increase costs that could jeopardize the feasibility of the conversion. It is also assumed that the farmer owns the land that is being farmed and is free of mortgage debt and other property loans. Average yields and input/output prices are also assumed during the time-span of the project to match the current cost studies. The acreage of 150 is also assumed with current government laws in place. A final assumption is the farm will be able to obtain additional or initial credit on the operating loan when needed during the conversion period since they are likely to need additional capital.

Limitations:

A limitation is the study's reliance on data collected from governmental sources. The study must rely on data collected by the reputable sources of University of California at Davis, Agricultural & Resource Economics website and the USDA Economics Research Service website. Since it would be beyond the scope of this study, not to mention extremely expensive,

to collect such data as an individual, the sources must be entrusted that their data is true and unbiased. Another limitation is possible inaccuracies that occur due to input price indexing. When an older input price is indexed to reflect current market conditions the resulting price might not always accurately reflect the actual price. One more limiting factor is the generalization of the expenses, prices and yields used in the study since those numbers could vary from year to year depending on the market or growing condition. A further limitation is the exemption of adding a tax consideration to the financial statements. Traditionally, the calculations that are preformed in real world situations take before and after tax measurements. Tax calculations were omitted from this study because of uncertainly what path the tax regulations will take given the current tumultuous times.

Chapter 4

Results

Data Collection Problems

The main data collection problem encountered during this study was the different species of lettuce used to generate the cost and return studies for the conventional and organic production methods. In an ideal situation the same species of lettuce should be used in the cost and return studies because those studies are used to generate the financial statements that are in turn used to compare the production methods. By not using the same species of lettuce for the cost and return studies (conventional was based off iceberg and organic was based off loose leaf) there is a possibility of introducing variability in the results that is not due to the conversion process.

Another data collection problem was finding the correct price for conventionally produced loose leaf lettuce, as it was not provided by to two original cost and return studies that were used to generate the financial statements for the study. This price, which equaled \$6.66 per carton, was found in an older cost study which then underwent price indexing to account for inflation, therefore making it comparable to the current prices. The figure needed for indexing, the conventional price for loose leaf lettuce was found on the United States Department of Labor

Website under the Bureau of Labor Statistics. The figure found in the producer price index tables equaled 1.947 and when multiplied by price gained from the outdated cost and return study of conventional loose leaf lettuce generated a price of \$12.07. This price will be used during the first three years of the conversion process because the farm cannot attain the organic price without full organic certification that process requires a minimum of at least three years of non-conventional production on the land in question.

Analysis

Conventional Operation

Every business should start with a solid foundation is it wished to have continued success and this is especially true if it is forecasted to undertake and changes to its business plan that would create an extra financial strain. The solid foundation for this study is created by generating financial documents from the revenues and expenses stated in the cost and return study of conventional production of iceberg lettuce. The focal financial documents for this study are the cash flow statement and the income statements. The farm starts with a beginning cash balance of \$60,000 and an ending cash balance of \$ 101,554. The yield per acre is 800 forty pound cartons at \$12 per carton. At the given yield per acre, 150 acre farm size and \$12 per carton price; the overall revenue is \$ 1,440,000, which is significantly lower than the potential overall revenue is \$ 1,687,500 with organic production.

The expenses of the conventional farming practice are also gained from the cost and return study for iceberg lettuce production and are used to generate an income statement and a cash flow statement for the base year. These expenses will be the base expenses that will be used to compare the changes that occur due to the conversion. The cultural and harvest expense are

directly related to expenses of growing and harvesting the crop and those expenses for the conventional production method for growing lettuce are as follows in Table 1 below

Table 1: Conventional Expenses (Cultural & Harvest)

Expense	Amount	Expense	Amount
Weeding	\$11,700.00	Pest and Insect Expense	\$81,600.00
Land Preparation	\$33,900.00	Pesticide Consultation Expense	\$4,200.00
Irrigation	\$57,750.00	Pick-up	\$7,350.00
Fertilization	\$62,100.00	Harvest	\$630,000.00
Planting	\$75,900.00	Total	\$ 964,500

The overhead costs are costs that are necessary for the operation of the business and those expenses are listed in Table 2 below.

Table 2: Conventional Expenses (Overhead)

Expense	Amount	Expense	Amount
Liability Insurance	\$150.00	Food Safety Certification	\$1,500.00
Office	\$18,900.00	Property Insurance	\$1,050.00
Field Sanitation	\$4,200.00	Property Taxes	\$900.00
Land Rent	\$135,000.00	Investment Repairs	\$1,800.00
Depreciation	\$107,678.61	Total	\$ 271,178.61

There are many strengths of this business including the ending net income of \$188,529.02 and the ending month cash balance of \$ 101,554, since both of these figures are more than the initial cash balance of \$60,000 which shows a positive gain. The differences between the net income and the ending month cash balance is due to the difference between what the statements measure in the business. An example of this is the beginning cash balance cannot be included in the income statement as it is in the cash flow statement which leads to some variability in the figures. An additional strength of this business is the relatively low interest expense of \$ 15,792.38 which leaves the business in a strong position to borrow and allows net income to remain high (since the interest expense is deducted from net income). However, upon

examination of the financial statements, there are some weaknesses that could be fixed by conversion to organic production practices. Such weaknesses include the lower price per unit of the conventional lettuce compared to the organic counterpart, the costly pest and insect expense and high planting expense.

Conversion Period (Year One):

It is the combination of strengths and weaknesses; expenses and a revenues; a net income and a cash balance; that the business will embark into the four year conversion period with hopes of success. Proper planning provided by financial documents and forecasting expenses and revenues can help the business plan and the financial documents needed for the conversion period will gain their revenues and expenses from the cost and return study of organic production of loose leaf lettuce. The focal financial documents for this study are the cash flow statement and the income statement. The yield per acre will shift to 750 cartons (weighing 25 lbs. each) per acre and since the farm is still in conversion it will not be able to attain the organic price of \$15 per carton, so the price per carton will be the indexed value of \$12.07 per carton. The yield decrease will create overall revenue for the farm of \$ 1,357,875 which equals decreased revenue of \$82,125 annually. This decrease in revenue will persist in the business during three years of the conversion period, after which, the farm can hope to attain organic certification and therefore the organic price premium. (As long as other certification standards are met, as discussed in literature review.) The beginning cash balance on the cash balance is \$101,554 with and ending cash balance on the cash flow statement of \$86,883. Of course the changes encountered during

the conversion period are not limited to the yields, cash balance and revenues because the organic methodology will greatly alter the expenses incurred by the business.

The expenses of the business are also gained from the cost and return study for the organic production of loose leaf lettuce and they are used to generate an income statement and a cash flow statement for the first year of the conversion process. The cultural, harvest and post-harvest expenses are directly related to the expense of growing and harvesting the crop. These expenses and the changes experienced in these expenses since the start of the conversion process are as follows in Table 3 below

Table 3: Organic Year 1 Expenses (Cultural, Harvest, Post-harvest)

Expense	Year 1 Amount	Change from Conventional	Expense	Year 1 Amount	Change from Conventional
Weeding	\$62,400	(+) \$50,700	Pest and Insect	\$14,250	(-) \$67,350
Land Preparation	\$28,350	(-) \$5,550	Pesticide Consultation	\$2,400	(-) \$1,800
Cover Crop	\$7,500	(+) \$7,500	Pick-up	\$6,300	(-) \$1,050
Irrigation	\$104,400	(+) \$46,650	Harvest	\$725,700	(+) \$95,700
Fertilization	\$106,350	(+) \$44,250	Post- Harvest	\$1,650	(+) \$1,650
Planting	\$25,350	(-) \$50,550	Total	\$1,084,650	(+) \$120,150

There are considerable shifts in all aspects of expenses of production in the conversion period in cultural, harvest and post-harvest expense categories. A cover crop expense is added to the conversion period because it is a necessary production expense for the organic lettuce production. The cover crop lessens soil erosion during non-production months and naturally enriches the soils nitrogen content and organic matter when it is disked into the soil before lettuce planting. Other expense increases include substantial increases in weeding, harvest, irrigation and fertilization expenses. The overall change in expenses from conventional to organic production creates a net increase of \$120,150 and the hope is the eventual attainment of

the organic price or decrease in other expenses will eventually offset any increase in expenses incurred. The overhead expenses for the first year of organic production and their respective shifts from the base year conventional overhead expense levels are listed in Table 4 below.

Table 4: Organic Expenses (Overhead)

Expense	Year 1 Amount	Change from Conventional	Expense	Year 1 Amount	Change from Conventional
Liability Insurance	\$150	\$0	Food Safety Cert.	\$1,500	\$0
Office	\$16,200	(-) \$2,700	Property Insurance	\$1,050	\$0
Field Sanitation	\$6,200	(+) \$2,000	Property Taxes	\$900	\$0
Land Rent	\$135,000	\$0	Investment Repairs	\$1,800	\$0
Annual Organic Cert. Fees	\$13,500	(+) \$13,500	Depreciation	\$44,996	(-) \$62,682.78
Total	\$221,295.83	(-) \$49,882.78			

The most notable shift is addition of the annual organic certification fee which increased the net overhead expenses by \$13,500. The only other increase from conventional to organic production in overhead expenses is the increase of an additional \$2,000 in field sanitation which is due to the addition of a cover crop and therefore more time in the field. The most notable decrease in expenses is a decrease of \$62,682.78 in depreciation expenses which is likely due to assets coming closer to their salvage value. Another lesser decrease is a decrease of \$2,700 in office expenses which is likely due to the difference in the calendar of operations between the two methods, since the organic production requires one less month than conventional. Overall, the shift to organic production has decreased the overhead expense by \$62,682.78 but this decrease is not enough to offset the increase in the cultural, harvest and post-harvest expenses of \$120,150.

To obtain a final calculation of the net change in expenses due to conversion to organic operations, one more expense must be included. Thus far all of the operating expenses have been

accounted for but the non-operating expense of interest should be monitored for changes and included to gain a final calculation of net change in expenses. The interest expense has shifted from the base year amount of \$15,792.38 to the year one in conversion amount of \$24,880.02, which is an increase of \$9,087.64. It is important to monitor the interest expense during the conversion time period since it will be the expense with the most variation through time and will likely best display the amount of financial stress the farm experiences. With this expense included the net change in expenses is an increase in expenses of $[\$9,087.64 + (-\$49,882.78) + \$120,150] = \$79,354.86$, which represents a 5.96% increase from conventional method expenses. The hope of the farm is the attainment of the organic price premium eventually will offset the higher expenses and lower the interest expense. Yet the increase in expenses and revenues are not the only changes occurring during this first year of the conversion.

During the first year of the conversion process the farm must re-evaluate their assets to see what changes must be undertaken to enable a smooth transition during the conversion. In this case, there are several assets that the farm must sell off from the conventional operation that will no longer be useful under the new organic production standards. The farm must also purchase new machinery to best conform to organic production methods. In the process of selling and buying assets the farm will experience a positive, negative or neutral outcome. This outcome can be seen as the company's initial investment into the conversion process. In this case the initial investment is negative and the investment amount needs to be regained during the process to be considered a minimal success. The initial investment, once obsolete assets are sold and new assets are purchased is -\$17,743 and the breakdown of those assets are shown in Table 5 below:

Table 5: Assets Sold and Purchase Due to Conversion

Assets to sell	Salvage Value	Assets to purchase	Salvage Value
160 HP 4WD Tractor	39,901	Mower-Flail 13'	12,749
75 HP MFWD Tractor	19,603	Planter Grain Drill 15'	21,427
		Planter Jr 1-Bed 2R 3'	1,315
		Ringroller - 21'	4,200
		Roller - Flat 16'	2,500
		Tape Retrieval Machine 4R 13'	6,480
		Tape Laying Machine 4R 13'	13,276
		Trailer-Pipe	2,100
		Pipe Sprinkler 1456'	13,200
Total	\$59,504	Total	\$77,247

Capital Loss (aka: initial investment) = -\$17,743

Since the financial statements in this study from this point on will be in the future, the net income should be calculated as its net present value as discussed in methodology. With the current figures, the NPV for year one in conversion $= -17,743 + (27,049.15/1.0425) = \$8,203.43$. At this level of NVP, the initial investment has been repaid resulting in a remaining profit presently valued at \$8,203.43. At the current NPV the percent decrease from the conventional production method for lettuce (the base year) is $\$8,203/188,529.02 = 4.35\%$ of the original which shows a decrease 95.65% of from the conventional method. The percentage of 95.65% is much higher than the hypothesized tolerable value of 5% decrease in net income and the goal of the farm in future years will be to increase the net income.

Conversion Period (Year Two):

As the farm continues in the conversion processes, the revenue for year two remain constant at \$1,357,875 with a price per carton of \$12.07 and a yield per acre of 750 cartons. The farm is still unable to attain the organic price premium of \$15 until after another full accounting year has passed. The initial cash balance is \$86,883 with an ending cash balance on the cash flow statement of \$67,875. The expenses for the farm remain constant from year one in conversion

(same expenses as seen in Tables 1 & 2) with the exception of the interest and depreciation expenses. Interest expense increased from year one in conversion slightly by \$843.60 to equal \$25,723.60 and depreciation expense decreased by \$7,270.89 from the year one in conversion level of \$44,996 to the year two level of \$37,725.11. With these shifts in expenses, These shifts in expenses still create expenses that are elevated by \$72,927.57 above the conventional method expenses which represents a 5.51% increase from conventional method expenses. The resulting net income for year two in conversion is \$33,476.29 and that net income can now be added to the ongoing net present value calculation.

To generate an accurate portrayal of the farm's position, the calculation for the year two in conversion NPV must take two net incomes into account, year one and year two in conversion, as well as the initial investment. The calculation for the year two in conversion NVP is as follows: $-17,743 + (27,049.15/1.0425) + (33,476.29/1.0425^2) = \$39,005.73$. At this level of NVP, the initial investment has been repaid resulting in a remaining profit presently valued at \$39,005.73. At the current NPV the percent decrease from the conventional production method for lettuce (the base year) is $\$39,005.73/\$188,529.02 = 20.69\%$ of the original which shows a decrease of 79.31% from the conventional method. The percentage of 79.31% is much smaller than the previous year's percentage of 95.65% but it is still much higher than the hypothesized tolerable value of 5% decrease in net income. The farm must still increase net income to decrease the percentage and make the conversion feasible.

Conversion Period (Year Three):

This year will be the last year where the farm will be unable to attain the organic price of \$15 per carton (assuming all other certification qualifications are met, as discussed in Chapter 2

Literature Review). Therefore the revenue for year three will remain constant at \$1,357,875 with a price per carton of \$12.07 and a yield per acre of 750 cartons. The initial cash balance is \$67,875 with an ending cash balance on the cash flow statement of \$40,027. The expenses for the farm remain constant (same expenses as seen in Tables 1 & 2) with the exception of the interest and depreciation expenses. Interest expense increased by \$1,092.96 from the year two in conversion level of \$25,723.60 to the year three in conversion level of \$26,816.56 and depreciation expense decreased by \$3,308.69 from the year two in conversion level of \$37,725.11 to the year three in conversion level of \$34,416.42. With these shifts in expenses, These shifts in expenses still create expenses that are elevated by \$70,711 above the conventional method expenses which represents a 5.35% increase from conventional method expenses. The resulting net income for year two in conversion is \$35,692.02 and that net income can now be added to the ongoing net present value calculation.

The calculation for NPV now must take all three net incomes into account to generate an accurate portrayal of the farms position generating a NPV of $-17,743 + (27,049.15/1.0425) + (33,476.29/1.0425^2) + (35,692.02/1.0425^3) = \$70,508.08$. At this level of NVP, the initial investment has been repaid resulting in a remaining profit presently valued at \$70,508.08. At the current NPV the percent decrease from the conventional production method for lettuce (the base year) is $\$70,508.08/\$188,529.02 = 37.40\%$ of the original which shows a decrease of 62.60% from the conventional method. The percentage of 62.60% is much smaller than the previous year's percentage of 79.31% and the increasing NPV net income trend is continuing but it is still more than double the hypothesized tolerable value of 5% decrease in net income. The farm must still increase net income to decrease the percentage and make the conversion feasible.

Conversion Period (Year Four):

This is the first year where the farm will be able to attain the organic price premium of \$15 per carton for their crop (assuming all other certification qualifications are met, as discussed in chapter 2 Literature Review). At \$15 per carton and the consistent yield per acre of 750 cartons per acre the revenue generated per acre will equal \$11,250 making the overall revenue for the 150 acre farm \$1,687,500. The expenses for the farm remain constant (same expenses as seen in Tables 1 & 2) with the exception of the interest and depreciation expense. Interest expense decreased by \$4,821.55 from the year three in conversion level of \$26,816.56 to the year four in conversion level of \$21,995.02 and depreciation expense decreased by \$3,267.15 from the year three in conversion level of \$34,416.42 to the year four in conversion level of \$31,149.27. This is the first year during the conversion process where both expenses have decreased and it might serve as an indicator that the farm has begun to recover from the financial burden of the conversion. These shifts in expenses still create expenses that are elevated by \$62,623.14 above the conventional method expenses which represents a 4.77% increase from conventional method expenses. The resulting net income for year two in conversion is \$373,405.72 and that net income can now be added to the ongoing net present value calculation.

When taking all four net incomes into account as well as the initial investment of conversion the NPV is $= -17,743 + (27,049.15/1.0425) + (33,476.29/1.0425^2) + (35,692.02/1.0425^3) + (373,405.72/1.0425^4) = \$386,646.08$. This would be the NPV calculations if the study was going to continue on for more than four years of cash flows but since this is the final cash flow for consideration in this study, the salvage value of the farm's assets must be subtracted from the NPV net income calculation at their present value to create an accurate comparable value. This creates an equation for studies final NPV of $= -17,743 +$

$(27,049.15/1.0425) + (33,476.29/1.0425^2) + (35,692.02/1.0425^3) + (373,405.72/1.0425^4) + (121,996/1.0425^4) = \$283,360.11$. At this level of NVP, the initial investment has been repaid resulting in a remaining profit presently valued at \$283,360.11. At the current NPV of net income, the percent change from the conventional production method for lettuce (the base year) is $\$283,360.11/\$188,529.02 = 150.30\%$ an increase of the original. This figure more than exceeds the hypothesized tolerable value of 5% decrease in net income. Trends in the changes in expenses and net income will be discussed in Chapter 5 and graphs can be found in the Figures 1 and 2 below.

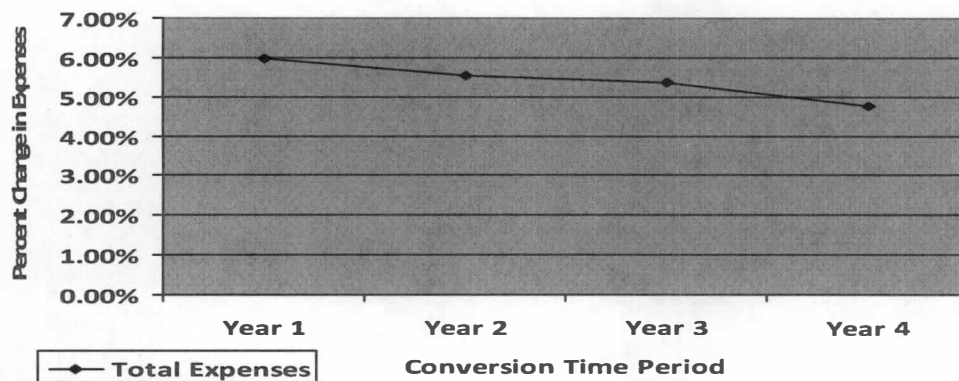


Figure 1: Percent Change in Expenses Relative to Base Year

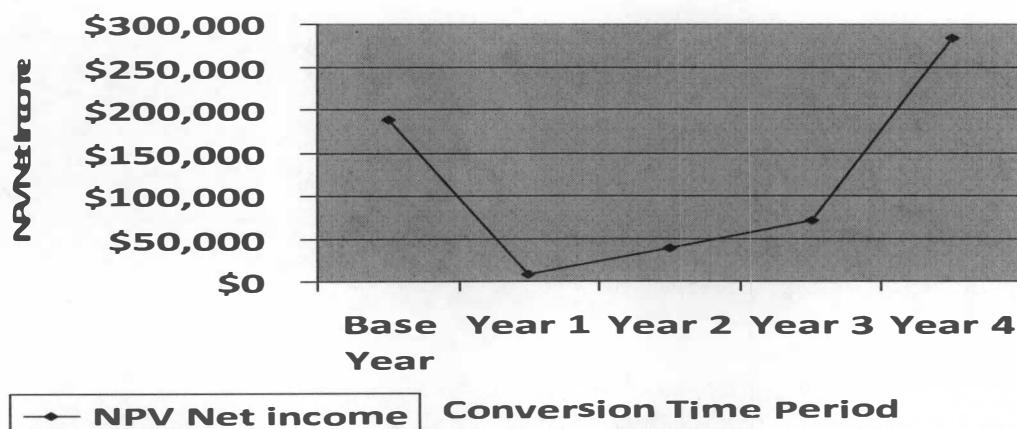


Figure 2: Change in NPV Net Income over Conversion Period

Chapter 5

Discussion

Summary:

Expenses and revenues from cost and return studies have been compiled to generate financial statements forecasted through a four year conversion period to determine the feasibility of organic conversion from a conventionally operated lettuce farm. The goal of the farm, and the test of feasibility, is to convert to an organic operation without decreasing net income by greater than or equal to five percent at the end of the four year conversion period. Since the cash flows are forecasted into the future through the conversion period, NPV was used to show the present value of the expected future cash flows. The NPV of the net income was too great of an increase to support the hypothesis until the last year of the conversion period. On the last year of the conversion period, the farm was able to attain the \$15 per carton organic price premium and that enabled that farm to drastically increase its NPV net income. The NPV net income at the end of year 4 in conversion was \$283,360.11 which is a 150.30% increase from the conventional production's net income.

Conclusions:

The recovery of the net income in the final year of the conversion shows the power of gaining the organic price premium. The organic method of production enabled the farm to

drastically decrease many of its expenses like pesticide and disease, harvest and planting. These expenses were able to be decreased during the conversion period because their inputs were no longer used, as with the pesticide and disease expense, or the organic method utilized different practices that lessened the input price per unit for the harvest and planting expenses. Some expenses experienced substantial increases like interest, fertilization, irrigation and weeding. The weeding expense likely increased due to the cessation of herbicide use and increased labor needed to control the increased weed population present in organic farming. The irrigation and fertilization expenses increased because organic methods for lettuce need to limit the over use of water to cut down on fungi growth so drip lines are used to distribute water and fertilization instead of overhead sprinklers or furrow irrigation. Over use of water and excess moisture in the soil can dramatically increase the occurrence of damaging disease in lettuce plants like Downey Mildew and Sclerotinia. Both of these fungus diseases can drastically reduce yields and they are of great concern for organic producers since they cannot use synthetic chemicals to defend against the spread of the disease. The increase in Irrigation and fertilization costs must be incurred to avoid potential over-watering and hopefully avoid excess moisture and lessen the occurrence of fungal disease in the field. Fertilization expenses also increase because the input prices of fertilizers used in organic methods are higher than those used in conventional farming.

The interest expense also experienced an increase in the initial year because of the added strain the conversion was adding to the farm required a higher operating loan. The interest expense continued to increase until it peaked at \$ 26,816.56 in year three of the conversion and did not begin to decline until the organic price premium was attained. This declining trend in interest expense after year three in conversion is due to the attainment of the organic price

premium and the interest expense probably would have continued to climb if the farm did not attain the organic premium price for the product.

The overall annual decrease in revenue during the three years of the conversion period where the farm could not gain the organic price premium was only a \$82,125 difference from the conventional production revenue and the farm was able to utilize an operating loan to aid in months where cash assets were short. The NVP net income of year four in conversion of \$283,360.11 which greatly surpasses the net income of the conventional production method of \$188,529.02, which is an increase of 150.30% due to the conversion that is shown by $\$283,360.11 / \$188,529.02 = 150.30\%$. Due to the positive outcome of the NPV of net income in year four and its substantially positive percent change from the conventionally produced base year, the hypothesis of will be upheld.

Recommendations:

Recommendations for this study primarily deal with eliminating the data collection problems experienced in chapter four. Ideally, the revenues and expenses should be gained for the financial documents from conventional and organic lettuce of the same varieties to eliminate any outside variations. Also the price for the conventional loose leaf lettuce was indexed to match current conditions so, while that practice is generally accepted, it is not 100% accurate and under ideal circumstances the true current price could have been found. Access to a test plot could have aided in this study for the yields and methods could be applied to the plot and the study could gain real world experience and data. Networking within the lettuce industry could have also aided this study as well.

References Cited:

- Acs, Szvetlana, et al. "Effect of Yield and Price Risk on Conversion from Conventional to Organic Farming." *Australian Journal of Agricultural and Resource Economics* no. 53, (2009): 408-409.
- Brigham, Eugene F. and Michael C. Ehrhardt. *Financial Management*. 12th ed. Mason, OH: South-Western Cengage Learning. 2008.(380)
- California Organic Program. http://www.cdfa.ca.gov/is/i_&_c/organic.html (accessed November 14, 2011)
- (CCFO, "Becoming Certified - Six Simple Steps" <http://www.ccof.org/seven.php> (accessed November 14, 2011)
- Chvyl, Lockshin, Mueller, and Remaud. July 2008. "Do Australian Wine Consumers Value Organic Wine?" *4th International Conference of the Academy of Wine Business Research*, Siena 17-19th July 2008
- Dekom, Anton K. "Systems Feasibility: Studying the Possibilities" *Journal of Systems Management*; 42, no.6 (Jun 1991) 23-27
- "Financial statement analysis 101: cash flow statement." *Managing Credit, Receivables & Collections* Oct. 2010: 10-12
- "Financial statement analysis 101: income statement." *Managing Credit, Receivables & Collections* 10-08 (August 2010): p13-14.
- Green, Catherine, Edward Slattery and William D MicBride 2010. "America's Organic Farmers Face Issues and Opportunities." *Amber Waves*. Washington, D.C.: USDA, June
- Guthman, Julie. "Regulating Meaning, Appropriating Nature: The Codification of California Organic Agriculture" *Antipode* 30: no. 2, 1998. 135-154

- Heckman, J. "A history of organic farming: Transitions from Sir Albert Howard's War in the Soil to USDA National Organic Program" *Renewable Agriculture and Food Systems*: 21(3); 143–150
- Kenkel, Phill, Rodney B. Holcomb, and Amanda Hill, "Feasibility of a Co-operative Winery" *Journal of Agribusiness* 26, no.2 (Fall 2008) 199-215
- Kenkel, Phil and Rodney Holcomb "Feasibility Templates for Value-Added Manufacturing Businesses" *Journal of Food Distribution Research* 36, no.1 (Mar-2005) 232–235.
- Lohr, Luanne, "Implications of Organic Certification for Market Structure and Trade" *American Journal of Agricultural Economics*, Vol. 80, No. 5, Proceedings Issue, (Dec., 1998) 1125-1129
- North Dakota State University Department of Agricultural Economics "Feasibility of Sheep Cooperative for Grazing Leafy Spurge" Randall S. Sell, Dan J. Nudell, Dean A. Bangsund, F. Larry Leistritz, Tim Faller, Agricultural Economics Report No 435, Fargo, North Dakota, January 2000, 58
- O'Riordan, Tim and Dick Cobb "Assessing the Consequences of Converting to Organic Agriculture" *Journal of Agricultural Economics* 52, no.1 (January 2001) 34
- Ross Jennings et al "The effects of corporate restructurings on the usefulness of the balance sheet" *Journal of Financial Statement Analysis*; Winter 3, no.2; (1998) 44
- Siegel, Marc A. "Accounting shenanigans on the cash flow statement: metrics might change, but corporate behavior does not" *The CPA Journal* 76.3 (2006): 38+
- Smith, Richard F. et al. "2009 Sample Cost to Produce Iceberg Lettuce, Central Coast Region" University of California Cooperative Extension <http://coststudies.ucdavis.edu/current.php>

Timothy J. Richards et al. "Retail and Wholesale Market Power in Organic Apples"

Agribusiness, Vol. 27 (1) 62–81 (2011)

Weiss, Neil S, and James G S Yang. "The Cash Flow Statement: Problems with the Current

Appendix I

Base Year Financials

		Balance Sheet 2011-2012			
Assets	Current				
	Cash		60,000		
	Non-current				
	PPE				
		125 HP 4WD Tractor	52,200		
		160 HP 4WD Tractor	64,800		
		200 HP Track Tractor	115,282		
		75 HP MFWD Tractor	39,962		
		80 HP Specialty Tractor	30,600		
		Bed Shaper/Mulcher 4 bed 13'	20,400		
		Chisel 16'	5,600		
		Cultivator 4 bed 13'	1,500		
		Disk-Finish, Folding 18'	18,000		
		Fertilizer Rig 4 bed 13'	2,571		
		Pickup 1/2 Ton	19,200		
		Planter Precision 4 bed, 2 line 13'	14,335		
		Rolling Cultivator, 13'	6,900		
		Subsoiler - 3 shank 5'	2,100		
		Trailer-Pipe	1,260		
		Triplane - 16'	14,400		
		Building 2400 sqft	80,000		
		Fuel Tank OH 2-300 gal	4,500		
		Pipe Sprinkler 264,000 ft	598,400		
		Shop Tools	<u>15,000</u>		
			1,107,009		
				Total Assets	1,167,009
Liabilities	Current Liabilities				
		Accounts Payable	200000		
		Accrued Depreciation	107,679		
		Operating loan (principal + interest)	311,996		
	Non-current Liabilities				
				Total Liabilities	619674.9
Owners Equity					547,335

<u>Income Statement 2011-2012</u>		
<u>Revenue</u>		
	Sales of lettuce Cartons (\$12 per 40 lb. carton at 800 per acre yield)	1,440,000.00
	Gross Profit	1,440,000.00
<u>Operating Expense(s)</u>		
	Weeding Expense	11,700.00
	Land Preparation Expense	33,900.00
	Irrigation Expense	57,750.00
	Fertilization Expense	62,100.00
	Planting Expense	75,900.00
	Pest and Insect Expense	81,600.00
	Pesticide Consultation Expense	4,200.00
	Pick-up Expense	7,350.00
	Harvest Expense	630,000.00
	Liability insurance	150.00
	Office Expense	18,900.00
	Field Sanitation	4,200.00
	Land Rent	135,000.00
	Food Safety Certification	1,500.00
	Property Taxes	1,050.00
	Property Insurance	900.00
	Investment Repairs	1,800.00
	Depreciation	107,678.61
	Total Operating Expense	1,235,678.61
	Operating Income	204,321.39
<u>Non-Operating Expense(s)</u>		
	Interest Expense	15,792.38
	Total Expense	1,251,470.99
	<u>Net Income</u>	<u>188,529.02</u>

Cash Flow Statement 2011-2012

		Totals											
Beginning Oct 11		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Ending Nov 12		11	11	11	12	12	12	12	12	12	12	12	12
Beginning Cash balance		60,000	0	0	0	0	0	0	108,554	107,154	105,754	104,354	102,954
Yield per acre is 800 40lb cartons at \$12 each								1,440,000					
	Total Cash Inflow	60,000	0	0	0	0	0	1,440,000	108,554	107,154	105,754	104,354	102,954
Cultural													
Land Prep Disk 5X		8,700											
Land Prep: Rip 2X		14,850											
Land Prep: Level (Triplane)		750											
Soil Amendment: (Compost)		9,600											
Land prep: Chisel		4,050											
Land Prep: List Beds (GPS). Fertilize. (8-8-8)		35,700											
Land Prep: Lillston (rolling Cultivator) 2X					3,150								
Land Prep: Shape beds					2,400								
Plant lettuce seeds, Seed (kerbed, prefar4), Insect (mustang)					62,250								
Irrigate: Layout and/or Pickup Sprinkler Pipe					4,500	13,500	9,000	9,000					
Irrigate: Sprinkle 3X (includes 1X Prethin)					3,900	1,950							
Weed: Cultivate						900							
Plant: Thin Lettuce						13,650							
Irrigate: Sprinkle						1,950	9,300	4,650					
Weed: Cultivate and Run Bottoms						600							
Fertilize: Siddress (UN32)						8,400	8,400						
Disease: Mildew (Manex), Sclerotinia (Endura). Insects: Aphid (Acephate)						18,150							
Weed: Hand Hoe							10,200						
Disease: Mildew (Manex). Insects:aphids(Acephate, MSR), Worms(Radiant)							20,700						
Disease: Mildew (Manex, Previcur). Insects: Aphid (Movento, MSR), Worms (Radiant)							26,850						
Disease: Mildes (phosphite. Insects: Aphid (provado), Worms (radiant)								15,900					
Pest: Pest Management Consultant		600	600	600	600	600	600	600					
Pickup use		1,050	1,050	1,050	1,050	1,050	1,050	1,050					
	Total Cultural Cost	75,300	1,650	1,650	77,850	60,750	86,100	31,200	0	0	0	0	0
Harvest													
Cut, Pack Haul								630,000					
Cool, Palletize, sell								186,900					
	Total Harvest Cost	0	0	0	0	0	0	816,900	0	0	0	0	0
	Total Operating Cost	0	0	0	0	0	0	848,100	0	0	0	0	0
Overhead													
Liability Insurance					150								
Office Expense		2,700	2,700	2,700	2,700	2,700	2,700	2,700					
Field Sanitation					1,050	1,050	1,050	1,050					
Land Rent								135,000					
Food Safety Certification						1,500							
Property Taxes					1,050								
Property Insurance					900								
Investment Repairs		150	150	150	150	150	150	150	150	150	150	150	150
Owner Withdrawals		1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
	Total Cash Overhead Cost	4,100	4,100	4,100	7,250	6,650	5,150	140,150	1,400	1,400	1,400	1,400	1,400
	Total Cash Cost	79,400	5,750	5,750	85,100	67,400	91,250	1,019,450	1,400	1,400	1,400	1,400	1,400
Monthly Remaining Balance		-19,400	-5,750	-5,750	-85,100	-67,400	-91,250	420,550	107,154	105,754	104,354	102,954	101,554
Operating Loan principal balance		19,400	5,750	5,750	85,100	67,400	91,250						
Interest Balance		1,116	1,446	1,777	6,670	10,546	15,792						
Operating loan balance		20,516	27,712	35,238	127,008	204,954	311,996						
Ending monthly Cash Balance		0	0	0	0	0	0	108,554	107,154	105,754	104,354	102,954	101,554

Year One in Conversion Financials

		Balance Sheet 2012-2013			
	Cash		101,554		
	PPE	125 HP 4WD Tractor	52,200		
		200 HP Track Tractor	115,282		
		80 HP Specialty Tractor	30,600		
		Bed Shaper/Mulcher 4 bed 13'	20,400		
		Mower-Flail 13'	12,749		
		Planter Grain Drill 15'	21,427		
		Planter Jr 1-Bed 2R 3'	1,315		
		Ringroller - 21'	4,200		
		Roller - Flat 16'	2,500		
		Tape Retrieval Machine 4R 13'	6,480		
		Tape Laying Machine 4R 13'	13,276		
		Chisel 16'	5,600		
		Cultivator 4 bed 13'	1,500		
		Disk-Finish, Folding 18'	18,000		
		Fertilizer Rig 4 bed 13'	2,571		
		Pickup 1/2 Ton	19,200		
		Planter Precision 4 bed, 2 line 13'	14,335		
		Rolling Cultivator, 13'	6,900		
		Subsoiler - 3 shank 5'	2,100		
		Trailer-Pipe	2,520		
		Triplane - 16'	14,400		
		Building 2400 sqft.	80,000		
		Fuel Tank OH 2-300 gal	4,500		
		Pipe Sprinkler 1456'	13,200		
		Shop Tools	<u>15,000</u>		
			480,255	Total Assets	581,809
	Current Liabilities	Accrued Depreciation	44,996		
		Operating loan (principal + interest)	506,542	Total Liabilities	551,538
	Owners Equity				30,271

Income Statement 2012-2013			
Revenues			NPV Calculations
	Sales of lettuce Cartons (\$12.07per 25 lb. carton at 750 per acre yield)	1,357,875.00	1,302,517.99
	Gross Profit	1,357,875.00	1,302,517.99
Operating Expense(s)			
	Weeding Expense	62,400.00	59,856.12
	Land Preparation Expense	28,350.00	27,194.24
	Cover Crop Expense	7,500.00	7,194.24
	Irrigation Expense	104,400.00	100,143.88
	Fertilization Expense	106,350.00	102,014.39
	Planting Expense	25,350.00	24,316.55
	Pest and Insect Expense	14,250.00	13,669.06
	Pesticide Consultation Expense	2,400.00	2,302.16
	Pick-up Expense	6,300.00	6,043.17
	Harvest Expense	725,700.00	696,115.11
	Post Harvest Expenses	1,650.00	1,582.73
	Liability insurance	150.00	143.88
	Office Expense	16,200.00	15,539.57
	Field Sanitation	6,200.00	5,947.24
	Land Rent	135,000.00	129,496.40
	Annual Organic Certification Fees	13,500.00	12,949.64
	Food Safety Certification	1,500.00	1,438.85
	Property Taxes	1,050.00	1,007.19
	Property Insurance	900.00	863.31
	Investment Repairs	1,800.00	1,726.62
	Depreciation	44,995.83	43,161.47
	Total Operating Expense	1,305,945.83	1,252,705.83
	Operating Income	51,929.17	49,812.15
Non-Operating Expense(s)			
	Interest Expense	24,880.02	23,865.73
	Total Expense	1,330,825.85	1,276,571.56
	Net Income	27,049.15	8,203.43
* Note: the NPV Calculations has a cost of capital of 4.25% in accordance to the cost and return study			

		Cash Flow Statement 2012-2013															
		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Totals			
		12	12	12	13	13	13	13	13	13	13	13	13	13			
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		12	12	12	13	13	13	13	13	13	13	13	13	13			
		12	12	12	13	13	13	13	13	13	13	13	13	13			

Buy				
	Mower-Flail 13'	12,749		
	Planter Grain Drill 15'	21,427		
	Planter Jr 1-Bed 2R 3'	1,315		
	Ringroller - 21'	4,200		
	Roller - Flat 16'	2,500		
	Tape Retrieval Machine 4R 13'	6,480		
	Tape Laying Machine 4R 13'	13,276		
	Trailer-Pipe	2,100		
	Pipe Sprinkler 1456'	13,200		
			77,247	
Sell				
	262544 feet of Pipe Sprinkler	0	Capital loss=	-17,673
	160 HP 4WD Tractor	39,901		
	75 HP MFWD Tractor	19,673		
			59,574	

Year 2 in Conversion Financials:

	<u>Balance Sheet 2013-2014</u>			
Current				
	Cash	100,000		
Non-current				
	PPE	480,255		
			<u>Total Assets</u>	580,255
Current Liabilities				
	Accrued Depreciation	8,368		
	Operating loan (principal + interest)	525,550		
Non-current Liabilities				
			<u>Total Liabilities</u>	533,918
Owners Equity				46,337

Income Statement 2013-2014			
Revenues			NPV Calculations
	Sales of lettuce Cartons (\$9 per 25 lb. carton at 750 per acre yield)	1,357,875.00	1,249,417.73
	Gross Profit	1,357,875.00	1,249,417.73
Operating Expense(s)			
	Weeding Expense	62,400.00	57,415.94
	Land Preparation Expense	28,350.00	26,085.61
	Cover Crop Expense	7,500.00	6,900.95
	Irrigation Expense	104,400.00	96,061.28
	Fertilization Expense	106,350.00	97,855.53
	Planting Expense	25,350.00	23,325.22
	Pest and Insect Expense	14,250.00	13,111.81
	Pesticide Consultation Expense	2,400.00	2,208.31
	Pick-up Expense	6,300.00	5,796.80
	Harvest Expense	725,700.00	667,736.31
	Post Harvest Expenses	1,650.00	1,518.21
	Liability insurance	150.00	138.02
	Office Expense	16,200.00	14,906.06
	Field Sanitation	6,200.00	5,704.79
	Land Rent	135,000.00	124,217.17
	Annual Organic Certification Fees	13,500.00	12,421.72
	Food Safety Certification	1,500.00	1,380.19
	Property Taxes	1,050.00	966.13
	Property Insurance	900.00	828.11
	Investment Repairs	1,800.00	1,656.23
	Depreciation	37,725.11	34,711.90
	Total Operating Expense	1,298,675.11	1,194,946.30
	Operating Income	59,199.89	54,471.43
Non-Operating Expense(s)			
	Interest Expense	25,723.60	23,668.99
	Total Expense	1,324,398.71	1,218,615.29
	Net Income	33,476.29	39,005.73
* Note: the NPV Calculations has a cost of capital of 4.25% in accordance to the cost and return study			

Cash Flow Statement 2013-2014

Beginning Oct 13 Ending Sept 14		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Totals
		13	13	13	14	14	14	14	14	14	14	14	14	14
	Beginning Cash balance	86,883	26,533	11,633	10,233	8,683	5,783	0	0	0	0	0	0	0
	Yield per acre is 750 25 lb cartons at \$12.07 each													1,357,875
	Total Cash Inflow	86,883	26,533	11,633	10,233	8,683	5,783	0	0	0	0	0	0	1,357,875
Cultural														
	Fertilize: Gypsum/Compost	22,650												22,650
	Land Prep: Sub Soil	9,600												9,600
	Land Prep: Disk and Roll	4,650												4,650
	Land Prep: Chisel	5,550												5,550
	Land Prep: Land Plane Field	3,900												3,900
	Cover Crop: Plant	5,850												5,850
	Cover Crop: Mow						450							450
	Cover Crop: Disk						1,200							1,200
	Land Prep: Disk and Roll 1X									2,400				2,400
	Land Prep: List Beds/ fertilize (Pelleted Chicken Manure)									41,250				41,250
	Irrigate: Pre-Irrigate-Sprinkle									6,600				6,600
	Weed: Cultivate 2X (Rolling Cultivator)									2,100				2,100
	Land Prep: Shape and Roll Beds									2,250				2,250
	Plant: Lettuce									25,350				25,350
	Insect: Plant Insectory (Asyssum Seed)									600				600
	Irrigate: Sprinkle 3X									6,600	3,300			9,900
	Stand Establishment: Thin. Weed: hand hoe										32,850			32,850
	Weed: Cultivate 2X (Rolling Cultivator)										1,050			1,050
	Irrigate: Lay drip Line and Laterals (drip tape)										45,150			45,150
	Fertilize Siddress (Bloodmeal)										52,050			52,050
	Irrigate: Drip 5X										4,050	8,400	4,050	16,500
	Fertilize: through drip tape (Phytamin										4,350	8,700		13,050
	Pests: Worms (Dipel)/Aphid(Pyganic)										13,650			13,650
	Weed: Cultivate / Furrow 2X (break Bottoms)										1,050	1,050		2,100
	Weed: Hand Hoe											24,300		24,300
	Irrigate: Retrieve Drip and Laterals												26,250	26,250
	Pest: Pest Management Consultant									600	600	600	600	2,400
	Pickup use	1,050					1,050			1,050	1,050	1,050	1,050	6,300
	Total Cultural Cost	53,250	0	0	0	0	2,700	0	0	88,800	159,150	44,100	31,950	379,950
Harvest														
	Cut, Pack Haul												466,950	466,950
	Cool, Palletize, sell												258,750	258,750
	Total Harvest Cost	0	0	0	0	0	0	0	0	0	0	0	725,700	725,700
Post harvest														
	Chop stubble												1,650	1,650
	Total Post Harvest Cost	0	0	0	0	0	0	0	0	0	0	0	1,650	1,650
	Total Operating Cost	53,250	0	0	0	0	2,700	0	0	88,800	159,150	44,100	759,300	1,107,300
Overhead														
	Liability insurance				150									150
	Office Expense	2,700					2,700			2,700	2,700	2,700	2,700	16,200
	Field Sanitation	1,050					1,050			1,050	1,050	1,050	1,050	6,300
	Land Rent							135,000						135,000
	Annual Organic Certification Fees		13,500											13,500
	Food Safety Certification					1,500								1,500
	Property Taxes	1,050												1,050
	Property Insurance	900												900
	Investment Repairs	150	150	150	150	150	150	150	150	150	150	150	150	1,800
	Owner Withdrawals	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	15,000
	Total Cash Overhead Cost	7,100	14,900	1,400	1,550	2,900	5,150	136,400	1,400	5,150	5,150	5,150	5,150	191,400
	Total Cash Cost	60,350	14,900	1,400	1,550	2,900	7,850	136,400	1,400	93,950	164,300	49,250	764,450	1,298,700
	Monthly Operating Loan Balance	26,533	11,633	10,233	8,683	5,783	-2,067	-136,400	-1,400	-93,950	-164,300	-49,250	593,425	
	Operating Loan principal balance						2,067	136,400	1,400	93,950	164,300	49,250	0	
	Interest Balance						119	7,962	8,042	13,444	22,892	25,724	0	
	Operating loan balance						2,186	146,548	155,990	263,385	450,576	525,550	0	
	Ending monthly Cash Balance	26,533	11,633	10,233	8,683	5,783	0	0	0	0	0	0	67,875	59,175

Year Three in Conversion Financials

Balance Sheet 2014-2015				
Current				
	Cash	100,000		
Non-current				
	PPE	480,255		
			Total Assets	580,255
Current Liabilities				
	Accounts Payable			
	Accrued Depreciation	8,368		
	Operating loan (principal + interest)	553,398		
Non-current Liabilities				
			Total Liabilities	561,766
Owners Equity				18,489

<u>Income Statement 2014-2015</u>			
<u>Revenues</u>			<u>NPV Calculations</u>
	Sales of lettuce Cartons (\$9 per 25 lb. carton at 750 per acre yield)	1,357,875.00	1,198,482.24
	Gross Profit	1,357,875.00	1,198,482.24
<u>Operating Expense(s)</u>			0.00
	Weeding Expense	62,400.00	55,075.24
	Land Preparation Expense	28,350.00	25,022.16
	Cover Crop Expense	7,500.00	6,619.62
	Irrigation Expense	104,400.00	92,145.11
	Fertilization Expense	106,350.00	93,866.21
	Planting Expense	25,350.00	22,374.32
	Pest and Insect Expense	14,250.00	12,577.28
	Pesticide Consultation Expense	2,400.00	2,118.28
	Pick-up Expense	6,300.00	5,560.48
	Harvest Expense	725,700.00	640,514.45
	Post Harvest Expenses	1,650.00	1,456.32
	Liability insurance	150.00	132.39
	Office Expense	16,200.00	14,298.38
	Field Sanitation	6,200.00	5,472.22
	Land Rent	135,000.00	119,153.16
	Annual Organic Certification Fees	13,500.00	11,915.32
	Food Safety Certification	1,500.00	1,323.92
	Property Taxes	1,050.00	926.75
	Property Insurance	900.00	794.35
	Investment Repairs	1,800.00	1,588.71
	Depreciation	34,416.42	30,376.48
	Total Operating Expense	1,295,366.42	1,143,311.16
	Operating Income	62,508.58	55,171.07
<u>Non-Operating Expense(s)</u>			
	Interest Expense	26,816.56	23,668.73
	Total Expense	1,322,182.98	1,166,979.89
	Net Income	35,692.02	70,508.08
* Note: the NPV Calculations has a cost of capital of 4.25% in accordance to the cost and return study			

		Cash Flow Statement 2014-2015															
Beginning Oct 14 Ending Sept 15		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Totals			
		14	14	14	15	15	15	15	15	15	15	15	15	15			
Beginning Cash balance		67,875	7,525	0	0	0	0	0	0	0	0	0	0	0	1,357,875	1,357,875	
Yield per acre is 750 25 lb cartons at \$12 each																1,357,875	1,357,875
Total Cash Inflow		67,875	7,525	0	0	0	0	0	0	0	0	0	0	0	1,357,875	1,357,875	
Cultural	Fertilize: Gypsum/Compost	22,650														22,650	
	Land Prep: Sub Soil	9,600														9,600	
	Land Prep: Disk and Roll	4,650														4,650	
	Land Prep: Chisel	5,550														5,550	
	Land Prep: Land Plane Field	3,900														3,900	
	Cover Crop: Plant	5,850														5,850	
	Cover Crop: Mow							450								450	
	Cover Crop: Disk						1,200									1,200	
	Land Prep: Disk and Roll 1X										2,400					2,400	
	Land Prep: List Beds/ fertilize (Pelleted Chicken Manure)										41,250					41,250	
	Irrigate: Pre-Irrigate-Sprinkle										6,600					6,600	
	Weed: Cultivate 2X (Rolling Cultivator)										2,100					2,100	
	Land Prep: Shape and Roll Beds										2,250					2,250	
	Plant: Lettuce										25,350					25,350	
	Insect: Plant Insectory (Asyssum Seed)										600					600	
	Irrigate: Sprinkle 3X										6,600	3,300				9,900	
	Stand Establishment: Thin. Weed: hand hoe											32,850				32,850	
	Weed: Cultivate 2X (Rolling Cultivator)											1,050				1,050	
	Irrigate: Lay drip Line and Laterals (drip tape)											45,150				45,150	
	Fertilize Siddress (Bloodmeal)											52,050				52,050	
	Irrigate: Drip 5X										4,050		8,400	4,050		16,500	
	Fertilize: through drip tape (Phytamin										4,350		8,700			13,050	
	Pests: Worms (Dipel)/Aphid(Pyganic)										13,650					13,650	
Weed: Cultivate / Furrow 2X (break Bottoms)											1,050	1,050			2,100		
Weed: Hand Hoe												24,300			24,300		
Irrigate: Retrieve Drip and Laterals													26,250		26,250		
Pest: Pest Management Consultant										600	600	600	600		2,400		
Pickup use		1,050						1,050			1,050	1,050	1,050	1,050	6,300		
Total Cultural Cost		53,250	0	0	0	0	0	2,700	0	0	88,800	159,150	44,100	31,950	379,950		
Harvest	Cut, Pack Haul														466,950	466,950	
	Cool, Palletize, sell														258,750	258,750	
Total Harvest Cost		0	0	0	0	0	0	0	0	0	0	0	0	0	725,700	725,700	
Post harvest	Chop stubble														1,650	1,650	
Total Post Harvest Cost		0	0	0	0	0	0	0	0	0	0	0	0	0	1,650	1650	
Total Operating Cost		53,250	0	0	0	0	0	2,700	0	0	88,800	159,150	44,100	759,900	1,107,300		
Overhead	Liability Insurance				150											150	
	Office Expense	2,700					2,700			2,700	2,700	2,700	2,700	2,700	16,200		
	Field Sanitation	1,050					1,050			1,050	1,050	1,050	1,050	1,050	6,300		
	Land Rent									135,000					135,000		
	Annual Organic Certification Fees		13,500												13,500		
	Food Safety Certification					1,500									1,500		
	Property Taxes	1,050													1,050		
	Property Insurance	900													900		
	Investment Repairs	150	150	150	150	150	150	150	150	150	150	150	150	150	1,800		
	Owner Withdrawals	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	15,000		
	Total Cash Overhead Cost		7,100	14,900	1,400	1,550	2,900	5,150	136,400	1,400	5,150	5,150	5,150	5,150	5,150	191,400	
	Total Cash Cost		60,350	14,900	1,400	1,550	2,900	7,850	136,400	1,400	93,950	164,300	49,250	764,450	1,298,700		
	Monthly Operating Loan Balance		7,525	-7,375	-1,400	-1,550	-2,900	-7,850	-136,400	-1,400	-93,950	-164,300	-49,250	593,425	1,357,875		
Operating loan principal balance			7,375	1,400	1,550	2,900	7,850	136,400	1,400	93,950	164,300	49,250					
Interest Balance			424	505	594	760	1,212	9,055	9,135	14,537	23,985	26,817					
Operating loan balance			7,799	9,704	11,847	15,508	24,570	170,024	180,560	289,047	477,332	553,398	40,027				
Ending monthly Cash Balance		7,525	0	0	0	0	0	0	0	0	0	0	0	40,027	59,175		

Year Four in Conversion Financials:

<u>Balance Sheet 2015-2016</u>			
Current			
	Cash	151,028	
Non-current			
	PPE	480,255	
		Total Assets	631,283
Current Liabilities			
	Accrued Depreciation	8,368	
	Operating loan (principal + interest)	442,084	
Non-current Liabilities			
		Total Liabilities	450,452
Owners Equity			180,831

Income Statement 2015-2016			
Revenue			NPV Calculations
	Sales of lettuce Cartons (\$15 per 25 lb. carton at 750 per acre yield)	1,687,500.00	1,428,695
	Gross Profit	1,687,500.00	1,428,695
Operating Expense(s)			
	Weeding Expense	62,400.00	52,829.97
	Land Preparation Expense	28,350.00	24,002.08
	Cover Crop Expense	7,500.00	6,349.76
	Irrigation Expense	104,400.00	88,388.60
	Fertilization Expense	106,350.00	90,039.53
	Planting Expense	25,350.00	21,462.17
	Pest and Insect Expense	14,250.00	12,064.54
	Pesticide Consultation Expense	2,400.00	2,031.92
	Pick-up Expense	6,300.00	5,333.79
	Harvest Expense	725,700.00	614,402.35
	Post Harvest Expenses	1,650.00	1,396.95
	Liability insurance	150.00	127.00
	Office Expense	16,200.00	13,715.47
	Field Sanitation	6,200.00	5,249.13
	Land Rent	135,000.00	114,295.60
	Annual Organic Certification Fees	13,500.00	11,429.56
	Food Safety Certification	1,500.00	1,269.95
	Property Taxes	1,050.00	888.97
	Property Insurance	900.00	761.97
	Investment Repairs	1,800.00	1,523.94
	Depreciation	31,149.27	26,372.03
	Total Operating Expense	1,292,099.27	1,093,935.27
	Operating Income	395,400.73	334,759.73
Non-Operating Expense(s)			
	Interest Expense	21,995.02	18,621.73
	Total Expense	1,314,094.29	1,112,557.00
	Net Income	373,405.72	283,360.11
* Note: the NPV Calculations has a cost of capital of 4.25% in accordance to the cost and return study			

		Cash Flow Statement 2015-2016															
Beginning Oct 15 Ending Sept 16		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Totals			
Beginning Cash balance		15	15	15	16	16	16	16	16	16	16	16	16	16	16	0	0
Yield per acre is 750.25 lb cartons at \$15 each		151,028	90,678	75,778	74,378	72,828	69,928	62,078	0	0	0	0	0	1,687,500	1,687,500	0	0
Total Cash Inflow		151,028	90,678	75,778	74,378	72,828	69,928	62,078	0	0	0	0	0	1,687,500	1,687,500		
Cultural																	
Fertilize: Gypsum/Compost		22,650															22,650
Land Prep: Sub Soil		9,600															9,600
Land Prep: Disk and Roll		4,650															4,650
Land Prep: Chisel		5,550															5,550
Land Prep: Land Plane Field		3,900															3,900
Cover Crop: Plant		5,850															5,850
Cover Crop: Mow							450										450
Cover Crop: Disk							1,200										1,200
Land Prep: Disk and Roll 1X											2,400						2,400
Land Prep: List Beds/ fertilize (Pelleted Chicken Manure)											41,250						41,250
Irrigate: Pre-Irrigate-Sprinkle											6,600						6,600
Weed: Cultivate 2X (Rolling Cultivator)											2,100						2,100
Land Prep: Shape and Roll Beds											2,250						2,250
Plant: Lettuce											25,350						25,350
Insect: Plant Insectory (Asyssum Seed)											600						600
Irrigate: Sprinkle 3X											6,600						9,900
Stand Establishment: Thin. Weed: hand hoe											32,850						32,850
Weed: Cultivate 2X (Rolling Cultivator)											1,050						1,050
Irrigate: Lay drip Line and Laterals (drip tape)											45,150						45,150
Fertilize Sdress (Bloodmeal)											52,050						52,050
Irrigate: Drip 5X											4,050		8,400	4,050			16,500
Fertilize: through drip tape (Phytamin)											4,350		8,700				13,050
Pests: Worms (Dipel)/Aphid(Pyganic)											13,650						13,650
Weed: Cultivate / Furrow 2X (break Bottoms)											1,050		1,050				2,100
Weed: Hand Hoe													24,300				24,300
Irrigate: Retrieve Drip and Laterals														26,250			26,250
Pest: Pest Management Consultant											600	600	600	600			2,400
Pickup use		1,050						1,050			1,050	700	700	700			5,250
Harvest																	
Cut, Pack Haul															466,950		466,950
Cool, Palletize, sell															258,750		258,750
Total Harvest Cost		0	0	0	0	0	0	0	0	0	0	0	0	725,700	725,700		
Post harvest																	
Chop stubble															1,650		1,650
Total Post Harvest Cost		0	0	0	0	0	0	0	0	0	0	0	0	1,650	1,650		
Total Operating Cost		53,250	0	0	0	0	2,700	0	0	0	88,800	158,800	43,750	758,950	1,106,250		
Overhead																	
Liability insurance					150												150
Office Expense		2,700					2,700				2,700	2,700	2,700	2,700			16,200
Field Sanitation		1,050					1,050				1,050	1,050	1,050	1,050			6,300
Land Rent								135,000									135,000
Annual Organic Certification Fees			13,500														13,500
Food Safety Certification						1,500											1,500
Property Taxes		1,050															1,050
Property Insurance		900															900
Investment Repairs		150	150	150	150	150	150	150	150	150	150	150	150	150			1,800
Owner Withdrawals		1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250			15,000
Total Cash Overhead Cost		7,100	14,900	1,400	1,550	2,900	5,150	136,400	1,400	5,150	5,150	5,150	5,150	5,150	5,150		191,400
Total Cash Cost		60,350	14,900	1,400	1,550	2,900	7,850	136,400	1,400	93,950	163,950	48,900	764,100	1,297,650			
Monthly Operating Loan Balance		90,678	75,778	74,378	72,828	69,928	62,078	-74,322	-1,400	-93,950	-163,950	-48,900	923,400	389,850			
Operating Loan principal balance																	
Interest Balance								4,274	4,354	9,756	19,183	21,995					
Operating loan balance								78,596	84,350	188,056	371,189	442,084					
Ending monthly Cash Balance		90,678	75,778	74,378	72,828	69,928	62,078	0	0	0	0	0	0	481,316	389,850		

Assets Depreciation Schedule:

	Pre	Dep.	Pre	Dep.	Base yr	Dep.	Year 1	Dep.	Year 2	Dep.	Year 3	Dep.	Year 4	Salvage Value	
	Original	2009	2009	2010	2010	2011	2011	2012	2012	2013	2013	2014	2014	2015	
125 HP 4WD Tractor	87000	78300	8700	70470	7830	63423	7047	57081	6342	51373	5708	46235	5137	41612	25698
160 HP 4WD Tractor	108000	97200	10800	87480	9720	78732	8748								
200 HP Track Tractor	192137	172923	19214	155631	17292	140068	15563	126061	14007	113455	12606	102109	11345	91899	56754
75 HP MFWD Tractor	66603	59943	6660	53948	5994	48554	5395								
80 HP Specialty Tractor	51000	45900	5100	41310	4590	37179	4131	33461	3718	30115	3346	27103	3011	24393	15065
Bed Shaper/Mulcher 4 bed 13'	34000	31167	2833	28569	2597	26189	2381	24006	2182	22006	2001	20172	1834	18491	4709
Mower-Flail 13'	12749	11474	1275	10327	1147	9294	1033	8365	929	7528	836	6775	753	6098	
Planter Grain Drill 15'	21427	19999	1428	18665	1333	17421	1244	16260	1161	15176	1084	14164	1012	13220	
Planter Jr 1-Bed 2R 3'	1315	1184	132	1065	118	959	107	863	96	776	86	699	78	629	
Ringroller - 21'	4200	3780	420	3402	378	3062	340	2756	306	2480	276	2232	248	2009	
Roller - Flat 16'	2500	2292	208	2101	191	1926	175	1765	160	1618	147	1483	135	1360	
Tape Retrieval Machine 4R 13'	6480	6156	324	5848	308	5556	292	5278	278	5014	264	4763	251	4525	
Tape Laying Machine 4R 13'	13276	12612	664	11982	631	11383	599	10813	569	10273	541	9759	514	9271	
Chisel 16'	9333	8555	778	7842	713	7189	654	6590	599	6041	549	5537	503	5076	1293
Cultivator 4 bed 13'	2500	2250	250	2025	225	1823	203	1640	182	1476	164	1329	148	1196	442
Disk-Finish, Folding 18'	30000	27000	3000	24300	2700	21870	2430	19683	2187	17715	1968	15943	1771	14349	4155
Fertilizer Rig 4 bed 13'	4285	3857	429	3471	386	3124	347	2811	312	2530	281	2277	253	2050	758
Pickup 1/2 Ton	32000	25600	6400	20480	5120	16384	4096	14342	2042						
Planter Precision 4 bed, 2 line 13'	23891	21502	2389	19352	2150	17417	1935	15675	1742	14107	1567	12697	1411	11427	4225
Rolling Cultivator, 13'	11500	10350	1150	9315	1035	8384	932	7545	838	6791	755	6112	679	5500	2034
Subsoiler - 3 shank 5'	3500	3150	350	2835	315	2552	284	2296	255	2067	230	1860	207	1674	1140
Trailer-Pipe	2100	1800	300	1543	257	1322	220	1134	189	972	162	833	139	714	371
Trailer-Pipe	2100	1800	300	1543	257	1322	220	1134	189	972	162	833	139	714	371
Triplane - 16'	24000	22000	2000	20167	1833	18486	1681	16946	1541	15533	1412	14239	1294	13052	3324
Building 2400 sqft	80000	77500	2500	75078	2422	72732	2346	70459	2273	68257	2202	65982	2275	63920	
Fuel Tank OH 2-300 gal	4500	4350	150	4205	145	4065	140	3929	135	3798	131	3672	127	3549	350
Pipe Sprinkler 264,000 ft.	598400	538560	59840	484704	53856	436234	48470	0	0	0	0	0	0	0	
Pipe Sprinkler 1456'	13200	11880	1320	10692	1188	9623	1069	8661	962	7794	866	7015	779	6314	
Shop Tools	15000	14250	750	13538	713	12861	677	12218	643	11607	611	11026	580	10475	1307
Totals	1379749	1246156	133593	1126263	119893	1018584	107679	471770	43839	419473	37955	384850	34623	353515	121996